

APPLICATION NO. 09/888,972  
DOCKET NO. P1045/N8801

### REMARKS

Claims 1-6 and 18-31 are currently pending in the above-captioned application. Claims 1, 18, 20 and 29 are amended herein and claims 30 and 31 added in order to more clearly define and fully protect Applicant's invention. Reconsideration and allowance of all claims 1-6 and 18-31 is respectfully requested.

#### Support for Amendments

The support for the substantive claim amendments made herein as well as newly added claims 30 and 31 appears in the specification at page 14, lines 11-16.

The amendments made to claim 29 are merely to conform claim 29 to the format of claim 1 from which it depends (reference to a "process of" rather than a "method according to"). In addition, the amendment made to claim 20 is simply to correct a spelling error.

#### Prior Art Rejections

Claim 1 stands rejected under 35 U.S.C. §102(b) over Sauzade et al. (U.S. 4,878,152).

Claims 1-6, 18-22, 25-27 and 29 stand rejected under 35 U.S.C. §102(e) over Tzeng (U.S. 6,482,520).

Claims 23 and 24 stand rejected under 35 U.S.C. §103(a) over Tzeng.

Claim 28 stands rejected under 35 U.S.C. §103(a) over Tzeng in view of Mercuri et al. (U.S. 5,902,762).

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Claims 2-6, 18-27 and 29 stand rejected under 35 U.S.C. §103(a) over Sauzade et al. view of Shane et al. (U.S. 3,404,061).

Claim 28 stands rejected under 35 U.S.C. §103(a) over Sauzade et al. in view of Mercuri et al.

None of the cited references anticipate the invention of the rejected claims. In addition, none of the references, taken in any combination, suggest Applicant's invention. The rejections under 35 U.S.C. §102 and §103 should, therefore, be withdrawn.

It is important to note a critical distinction between the invention of the rejected claims and the disclosures of the cited references, a distinction emphasized by the amendments made herein to claims 1 and 18, as well as newly added claims 30 and 31.

The process of the present invention is capable of providing a thermal management device such as a heat spreader or a heat pipe which displays thermal characteristics never before produced or foreseen for a graphitic element. More particularly, the inventive laminate achieves a thermal anisotropic ratio of at least about 70, a ratio which, in fact, is substantially greater than that of copper, the standard by which thermal management devices are measured. Indeed, when in-plane thermal conductivity is considered, conductivities in excess of 350 W/m°C are achieved. Indeed, the in-plane thermal conductivities rival those of copper (at a much lower density) and can exceed those of aluminum. Thus, the inventive laminates

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achieve thermal performances not achieved, described, or disclosed in any of the cited references.

While the cited references do disclose the use of sheets of graphite in thermal management devices, none disclose a process for so aligning the graphene layers of the sheets to produce the disclosed thermal performances. Thus, neither Sauzade et al. or Tzeng, which admittedly relate to the use of graphitic materials in thermal management devices, disclose or suggest the degree of thermal performance achieved by the invention of the rejected claims. Accordingly, they cannot and do not anticipate the inventions of the rejected claims.

Likewise, the addition of the Mercuri et al. and Shane et al. references does not provide any additional disclosure as would suggest the inventions of the rejected claims. Nowhere is there disclosed or suggested a laminate of flexible graphite sheets, some of which may be resin-impregnated, which have aligned graphene layers (usually by the application of pressure thereto) to the extent that the extremely advantageous, and now claimed, thermal performance is achieved.

It is respectfully suggested that it is only through the application of a hindsight analysis of the cited prior art by which a suggestion of the claimed invention can be gleaned. Of course, such a hindsight analysis is not permissible.

Therefore, it has been made clear the inventions of all claims 1-6 and 18-31 are patentable distinguished from the disclosures of the cited references. Withdrawal of all rejections is therefore believed appropriate and is respectfully requested.

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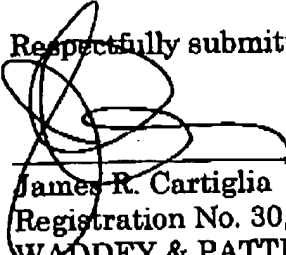
The remaining references, cited but not applied, have been reviewed but are not deemed sufficiently pertinent to require additional comment.

### CONCLUSION

Based on the foregoing amendments and remarks, it is believed that the above-captioned application is now in condition for allowance. Such action is earnestly sought. If there remains any matter which prevents the allowance of any of claims 1-6 and 18-31, the Examiner is requested to call the undersigned, collect, at 615-242-2400 to arrange for an interview which may further expedite prosecution.

Pursuant to 37 C.F.R. §1.136(a), Applicant petitions the Commissioner to extend the time for responding to the March 18, 2002 Office Action for 1 month from June 18, 2002, to July 18, 2002. Applicant authorizes the Commissioner to charge the amount of \$110.00 for the petition fee to deposit account 50-1202. The Commissioner is authorized to charge any deficiency or credit any overpayment associated with the filing of this Response to Deposit Account 50-1202.

Respectfully submitted,



James R. Cartiglia  
Registration No. 30,738  
WADDEY & PATTERSON  
A Professional Corporation  
Customer No. 23456

ATTORNEY FOR APPLICANT

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Wadley & Patterson  
414 Union Street, Suite 2020  
Bank of America Plaza  
Nashville, TN 37219  
(615) 242-2400

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I hereby certify that this Response To Official Action is being facsimile transmitted to the United States Patent and Trademark Office, Fax No. 703-872-9310 on July 15, 2003.

James R. Cartiglia

Signature  
Registration Number 30,738

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